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10/629,033	07/28/2003	Robert N. Mayo	200208396	7375

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EXAMINER	
WAI, ERIC CHARLES	

ART UNIT	PAPER NUMBER
2195	

NOTIFICATION DATE	DELIVERY MODE
11/09/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/629,033	MAYO ET AL.	
	Examiner	Art Unit	
	ERIC C. WAI	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *29 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-18 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The following terms are unclear and indefinite:

i. Claim 1 line 6 recites, "changes the power state". It is unclear whether the power state refers to simply an "on" or "off" state or whether the storage access subsystem is capable of a more granular approach to managing power states.

ii. Claim 1 line 7 recites, "based on a power management rank". It is unclear how the power state reflects the power management ranking (i.e. is the power state is changed to an "on" state based on a higher ranking or is there a separate power state for each of the ranks?).

iii. Claim 1 lines 9-10 recite, "a transaction analyzer that determines a priority metric for an incoming access transaction to the persistent storage". It is unclear what determination is used to determine a priority

metric. For example, does the transaction have a set priority or does the priority need to be calculated after the transaction is received by the transaction analyzer?

iv. Claim 1 lines 11-12 recite, "by matching the priority metric to the power management ranks". It is unclear whether the matching is performed by matching a numerical value of the priority metric to an identical numerical value of the power management ranks (i.e. one to one correspondence of each of the set of priority metrics to each of the set of power management ranks?).

v. Claim 10 is rejected for the same reasons as claim 1 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero et al. (US Pat No. 7,523,454) in view of Begun et al. (US PG Pub No. US 2003/0055969 A1).

4. Regarding claim 1, Romero teaches an information system (abstract), comprising:

a persistent storage (col 3 line 64 to col 4 line 2, wherein transactions can take the form of data to be stored in a network area storage device);

a rank assigned to each storage access subsystem (col 2 lines 55-57).

a set of storage access subsystems each for use in accessing the persistent storage (col 2 lines 7-11, wherein an embodiment of the invention can be a single partitioned server (i.e. multiple subsystems), used to process transactions);

a transaction analyzer that determines a priority metric for an incoming access transaction to the persistent storage and that transfers the incoming access transaction to one of the storage access subsystems by matching the priority metric to the ranks (col 5 lines 5-33, wherein some type of priority metric is determined for an incoming transaction; col 2 lines 47-51, wherein the load balancer routes the transactions to the partitions based on their configuration; col 2 lines 55-57).

5. Romero does not teach that the rank is a power management rank and a power manager coupled to the storage access subsystems, the power manager selectively changes the power state of each storage access subsystem based on a power management rank assigned to each storage access subsystem.

6. Begun teaches a method of scaling power consumption of the system to the current workload on the network ([0006]). Begun teaches a power regulator that monitors a set of servers and sets power states according to a custom metric ([0035]). A custom metric could be interpreted as a ranking characteristic as taught by Romero.

7. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Romero to teach a power manager selectively changes the power state of each storage access subsystem based on the rank taught by Romero. One would be motivated by the desire to reduce power consumption and scale the power consumption according to workload as taught by Begun.

8. Regarding claim 10, it is the method claims of claim 1. Therefore, it is rejected for the same reasons as claim 1 above.

9. Claims 2-3 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero et al. (US Pat No. 7,523,454) in view of Begun et al. (US PG Pub No. US 2003/0055969 A1) as applied to claims 1 and 10 above, further in view of Yu (US Pat No. 6,807,572).

10. Regarding claims 2-3, Romero and Begun do not teach that the transaction analyzer determines the priority metric by determining a frequency of occurrence for the incoming access transaction (claim 2) or a frequency of access of a database table referenced in the incoming access transaction (claim 3).

11. Yu teaches that depending on the frequencies of requests, and the load of other, more frequent queries, the application server will choose to give priority to other queries first (col 2 lines 50-54).

12. It would have been obvious to one of ordinary skill in the art at the time of the invention to include determining the priority metric based on a frequency. One would be motivated by the desire to increase flexibility and scalability to serve potentially a large number of clients during run time (col 2 lines 54-56).

13. Regarding claims 11-12, they are the method claims of claims 2-3 above. Therefore, they are rejected for the same reasons as claims 2-3 above.

14. Claims 4-5 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero et al. (US Pat No. 7,523,454) in view of Begun et al. (US PG Pub No. US 2003/0055969 A1), as applied to claims 1 and 10 above, further in view of Huberman et al. (US Pat No. 6,085,216).

15. Regarding claim 4, Romero and Begun do not teach that the transaction analyzer determines the priority metric by determining a dollar cost associated with the incoming access transaction.

16. Huberman teaches a method of utilizing cost of transactions across a network to determine efficient execution strategies (col 12 lines 28-41). It would have been obvious to one of ordinary skill in the art at the time of the invention to determine the priority metric by determining a dollar cost. One would be motivated by the desire to utilize cost of a transaction as a means to allocate resources efficiently as taught by Huberman.

17. Regarding claim 5, Romero and Begun do not teach that the transaction analyzer determines the priority metric by determining a computational complexity associated with performing the incoming access transaction.

18. Huberman teaches that computational complex problems require solution time s that grow exponentially as the size of the problem grow arithmetically (col 1 lines 21-24)

19. It would have been obvious to one of ordinary skill in the art at the time of the invention to determine the priority metric by determining a computational complexity. Since Huberman teaches that computational complexity requires more computational processing power, one would be motivated by the desire to rank the request based on the need for resources.

20. Regarding claims 13-14, they are the method claims of claims 4-5 above. Therefore, they are rejected for the same reasons as claims 4-5 above.

21. Claims 6-7, 15 -16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero et al. (US Pat No. 7,523,454) in view of Begun et al. (US PG Pub No. US 2003/0055969 A1), in view of Huberman et al. (US Pat No. 6,085,216), as applied to claims 4-5 and 13-14 above, further in view of Shisler et al. (US Pat No. 6,801,926).

22. Regarding claims 6-7, Romero, Begun, and Huberman do not teach that the computational complexity is indicated by a number of database tables in the persistent store that are referenced by the incoming access transaction or that the computational complexity is indicated by a number of field matches specified in the incoming access transaction to database tables in the persistent store.

23. Shisler teaches that accessing a greater number of database tables of fields is a more computationally complex process (col 11 lines 27-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Romero, Begun, and Huberman to teach that the number of field matches is more complex. One would be motivated by the desire to priority the computational complexity of database transactions.

24. Regarding claims 15-16, they are the method claims of claims 6-7 above. Therefore, they are rejected for the same reasons as claims 6-7 above.

25. Claims 8-9 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero et al. (US Pat No. 7,523,454) in view of Begun et al. (US PG Pub No. US 2003/0055969 A1), as applied to claims 1 and 10 above, further in view of Stefanescu et al. (US Pub No. US 2003/0013951 A1).

26. Regarding claims 8-9, Romero and Begun do not teach that the transaction analyzer determines the priority metric in response to a set of query constraints contained in the incoming access transaction (claim 8) or that the priority metric is based on a size of a database table in the persistent store to which the query constraints are to be applied (claim 9).

Stefanescu teaches prioritizing queues based on the supplied constraints to organize the data in a system with finite resources ([0107] lines 5-12). By interleaving the requests, processing can occur as soon as possible on systems where the amount of data to be transmitted is limited.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include determining a priority metric in response to the size of the database table. One would be motivated by the desire to allow processing to being as soon as possible in order to meet SLA requirements ([0107] lines 10-16).

27. Regarding claims 17-18, they are the method claims of claims 8-9 above. Therefore, they are rejected for the same reasons as claims 8-9 above.

Response to Arguments

28. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric C. Wai whose telephone number is 571-270-1012. The examiner can normally be reached on Mon-Thurs, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng - Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195

/Eric C Wai/
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